Preventing Recurrent Homelessness among Mentally Ill Men: A "Critical Time" Intervention after Discharge from a Shelter

ABSTRACT

Objectives. This study examined a strategy to prevent homelessness among individuals with severe mental illness by providing a bridge between institutional and community care.

Methods. Ninety-six men with severe mental illness who were entering community housing from a shelter institution were randomized to receive 9 months of a "critical time" intervention plus usual services or usual services only. The primary analysis compared the mean number of homeless nights for the two groups during the 18-month follow-up period. To elucidate time trends, survival curves were used.

Results. Over the 18-month follow-up period, the average number of homeless nights was 30 for the critical time intervention group and 91 for the usual services group. Survival curves showed that after the 9-month period of active intervention, the difference between the two groups did not diminish.

Conclusions. Strategies that focus on a critical time of transition may contribute to the prevention of recurrent homelessness among individuals with mental illness, even after the period of active intervention. (*Am J Public Health.* 1997;87: 256–262)

Ezra Susser, MD, DrPH, Elie Valencia, JD, Sarah Conover, MPH, Alan Felix, MD, Wei-Yann Tsai, PhD, and Richard Jed Wyatt, MD

Introduction

This randomized clinical trial tested an approach to prevent homelessness among mentally ill individuals. Although it is widely believed that mentally disabled persons merit care and accommodation in the community, we frequently fail in providing it.[1–9] In the United States, men and women with chronic mental illnesses such as schizophrenia have a 25% to 50% risk of becoming homeless, which is about 10 to 20 times the risk of homelessness for the general population.[10–13]

Few would dispute that the prevention of homelessness among mentally ill men and women is a vital issue for public health. Those who become homeless not only may suffer from demoralization and destitution but also may be exposed to related adversities, for instance, to become victims of rape or assault or to contract serious medical illnesses such as tuberculosis.[4,5,8,10,12] In light of the broader social and historical causes of homelessness,[12–16] it may be unrealistic to think that all homelessness in this population can be prevented by a health care intervention, but it should be possible to reduce the risk.

In recent years there have been notable advances in community psychiatric care[17–22] and important efforts to find ways to care for mentally ill persons who become homeless.[23–28] Nonetheless, more than a decade after Baxter and Hopper[29] drew attention to the reemergence of homelessness in developed societies, controlled studies of health care strategies to prevent homelessness in this (and related) population(s) are scant.[30–33] Most studies that have attempted to test preventive interventions have failed to achieve conclusive results, partly because of the difficulty of follow-up in this population.

The strategy tested in the present study, critical time intervention (CTI), is designed to prevent homelessness by enhancing the continuity of care for individuals being discharged from institutional to community living. Homelessness among the mentally ill has been attributed, in part, to discontinuity in mental health services.[2–4] Discontinuity often occurs when an individual is deinstitutionalized, that is, transferred from an institution to community living. Therefore, CTI creates a bridge between institutional and community care at a critical time in the deinstitutionalization process.

We have proposed that the first months of community living are crucial for adjustment.[34] Generally during these first months, relationships are exquisitely fragile and mutual obligations are being negotiated between the deinstitutionalized individual and those who may offer formal or informal support in community living. In CTI, the period of active intervention is limited to this critical time. We hypothesized, however, that the effects might endure beyond the period of active intervention.

Ezra Susser, Elie Valencia, Sarah Conover, Alan Felix, and Wei-Yann Tsai are with the Columbia University Schools of Medicine and Public Health, the New York State Psychiatric Institute, and the Presbyterian Hospital Psychiatric Service, New York, NY. Ezra Susser is also with the Center for Urban Epidemiologic Studies, New York Academy of Medicine. Richard Jed Wyatt is with the Neuropsychiatry Branch, National Institute of Mental Health, Bethesda, Md.

Requests for reprints should be sent to Ezra Susser, MD, DrPH, Columbia University/New York State Psychiatric Institute, 722 W 168th St, Box 24, New York, NY 10032.

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CTI is intended for use by a broad range of institutions, including shelters, hospitals, and jails, and for prevention of first episodes of homelessness as well as recurrent homelessness. In the present study, CTI was applied to prevent recurrent homelessness among inner-city men with severe mental illness who were being discharged from a 1000-bed shelter to community housing. The men had been homeless over an extended period and were therefore at high risk for becoming homeless again.[35] In addition, they were being transferred from a large institution to the community. The situation provided a stringent test of our hypothesis.

Methods

Subjects

The subjects were patients discharged from an on-site psychiatry program in a New York City men's shelter to return to community housing. All clients of the program had severe mental illness, usually schizophrenia or other psychotic disorders such as bipolar psychoses. The vast majority were African Americans and Latinos.

The on-site program, described in detail elsewhere,[27] treated 50 to 100 men at any given time, providing outreach and rehabilitation services and preparing them for housing in the community. Patients who completed the on-site program had access to a broad spectrum of supportive housing in New York City, ranging from intensively supervised community residences to single-room-occupancy hotels with on-site social services. Nonetheless, a significant minority of men could not or would not be accomodated in any of these settings and were discharged to family, friends, or miscellaneous other arrangements.

Over a 2-year period (1991–1993), all 102 men who were discharged to housing in the New York City region were invited to participate in the clinical trial. Ninety-six (94%) chose to participate and signed an informed consent form. After their housing placement had been selected, these men were randomly assigned to receive either CTI or usual services only (USO). The men in the CTI group received 9 months of CTI plus usual services and then usual services only for the following 9 months. The men in the USO group received usual services only for the entire 18 months of the study.

TABLE 1—Services Received by Mentally Ill Men in the Critical Time Intervention (CTI) and Usual Services Only (USO) Groups during the 18 Months after Discharge from Shelter to Community Living

	CTI Group	USO Group
1–3 months	Accommodation phase: CTI workers Make home visits Accompany patients to appointments Meet with caregivers Substitute for caregivers when necessary Give support and advice to patient and caregivers Mediate conflicts between patient and caregivers Help negotiate ground rules for relationships	Transition services: shelter staff Assist patients and caregivers upon request Substitute for caregivers when necessary
4–7 months	Tryout phase: CTI workers Observe trial of ground rules Help to modify ground rules as necessary	Usual services: Services provided by community formal and informal supports Patient and caregivers can phone for advice
8–9 months	Termination phase: CTI workers Reaffirm ground rules Hold parties/meetings to symbolize transfer of care	
10–18 months	Usual services	

Interventions

The two interventions are compared in Table 1.

CTI. CTI has two components.[34] The first is to strengthen the individual's long-term ties to services, family, and friends. The second is to provide emotional and practical support during the critical time of transition.

The present study applied CTI to a multiply disabled population that was not easily accommodated by the community service system.[23,27] Patients in this shelter setting had not only psychotic disorders with associated deficits in cognition and social skills, but also comorbid conditions such as substance use disorders, explosive disorders with violent outbursts, and medical complications including human immunodeficiency virus (HIV) infection and tuberculosis. In addition, this population was characterized by multiple social disadvantages. Many of these men had traumatic childhood histories, had been in jail or prison, had no close friends or steady sexual relationships, and had fragile relationships with their families of origin.

To implement the first component of CTI, the clinical team devised a plan for the transfer of care from the shelter to other formal and informal supports. The plan focused on specific areas of potential discontinuity that were related to the risk of homelessness for that individual—for instance, medication adherence and/or money management. Each man was then assigned to a CTI worker to implement the plan. The CTI worker did not need to have a professional degree (each worker was supervised by a psychiatrist or other mental health professional) but did need to have experience working with this population and enough "street smarts" to work with these men in the community. CTI work entailed visiting the family home or community residence, being present at appointments, and locating patients and giving advice in times of crisis. For example, a mental health clinic might cancel assistance to a client who was evaluated but then failed to appear for his first appointment and came at the wrong time for his second appointment. A CTI worker could accompany the patient to the clinic and help him to develop a personal relationship with someone there. The patient would then be far more likely to keep appointments consistently, and the clinic would be likely to seek him out if he did not show up. As a second example, a mother might wish to care for her

TABLE 2—Demographic Characteristics and Diagnoses of Mentally Ill Men in the Critical Time Intervention (CTI) and Usual Services Only (USO) Groups

	CTI (n = 48)		USO (n = 48)		
	No.	%	No.	%	χ^{2} [a]
Age, y					
≥35	30	62	28	58	
<35	18	38	20	42	0.17, $P = .68$
Race/ethnicity					
African American	38	79	33	69	
Other	10	21	15	31	1.35, $P = .24$
Education					
<High school	26	54	31	65	
≥High school	22	46	17	35	1.08, $P = .30$
Lifetime homelessness					
≤1 y	7	15	14	29	
>1 y	41	85	34	71	2.99, $P = .08$
Psychiatric hospitalizations					
<5	28	58	33	69	
≥5	20	42	15	31	1.12, $P = .29$
Psychiatric diagnosis[b]					
Schizophrenia	32	67	33	69	
Other	16	33	15	31	0.05, $P = .83$
Cocaine dependence[b]					
No	21	44	30	62	
Yes	27	56	18	38	3.39, $P = .07$
Alcohol dependence[b]					
No	20	42	24	50	
Yes	28	58	24	50	0.67, $P = .41$

[a] $df = 1$ for all comparisons.
[b] Lifetime diagnosis.

mentally ill son and the son might wish to live with his mother, but the son might have habits (e.g., poor hygiene, open use of drugs) that the mother would find intolerable. The CTI worker could help the mother and son reach an understanding about the ground rules for living together.

To implement the second component of CTI, during the first 2 weeks after discharge the CTI worker spent time with the client in the community and observed his physical and social surroundings and daily habits. Subsequent support was individually tailored. Some clients needed only a few follow-up visits. At the other extreme, some clients needed frequent visits for emotional support over several months and help with practical matters such as obtaining a minimum of furniture and locating inexpensive stores.

USO. For usual services, the men were referred to mental health and rehabilitation programs that were generally of high quality. Following the usual model of discharge from an institution, the staff of the on-site shelter psychiatry program were available to these agencies for consultation on request, but they did not actively seek a role in the client's care after discharge. The men were also referred as needed to community agencies for substance abuse, general health, income support, education, legal advocacy, and other services. The number and the range of potential service agencies in New York City were greater than in most urban areas. The connections among the various agencies in regard to the care of an individual, however, were generally weak and unsystematized.

Adherence to protocol. The CTI and USO interventions were applied in a standardized fashion, as specified in a manual. To ensure adherence to the specified protocols, the investigators met weekly with the clinical team. The clinical team presented CTI and USO cases at these meetings, and in each case presentation they specified the relation of the treatment plan to the CTI or USO protocol. Thus, any departures from the intended experimental and control treatments were detected rapidly.

To document adherence to the protocols, service logs and ethnographic data were used. In addition, on completion of each case that was assigned to CTI, the CTI worker was asked to specify the interventions used and to give a full narrative account of the case. These narratives were archived and are available for inspection.

Assessments

Prior to randomization, the men were administered diagnostic and other assessments. The Structured Clinical Interview for DSM-III-R (SCID)[36] was used to determine the psychiatric diagnosis. The SCID is an instrument of demonstrated reliability that we had used previously in this population.[37] The interviewers were master's-level health professionals with clinical experience. They were trained by the authors of the instrument, using a standard protocol.

The Personal History Form, developed for this population, was used for demographic characteristics and personal history, including treatment and homelessness histories.[38] The items had been previously used and extensively piloted in studies of this population.

After randomization, face-to-face assessments were conducted every 30 days for 18 months. These assessments were administered by a trained interviewer blind to the client's group status, who documented where the client had spent each night. In cases in which a man had missed an assessment, the interviewer always documented the housing experience of each night since the last completed assessment. In this way, the man's residential experience was continuously traced for each night over the 18-month follow-up period. Occasionally, when a man could not be directly interviewed, the assessment was conducted with a key informant such as a close relative or a caseworker.

A test–retest study of 55 subjects demonstrated that homelessness could be assessed with high reliability with this approach. The test–retest reliability study was conducted in three settings: a soup kitchen (n = 18), a rehabilitation program (n = 19), and the present study (n = 18). In the first assessment, participants were asked about their homelessness during the past 30 nights; in the second assessment 1 week later, they were asked about their homelessness in the same time period. The kappa statistic[39] was .93. Twenty-four men reported on both occasions that they

TABLE 3—Homeless Nights over 18-Month Follow-Up Period for Mentally Ill Men in the Critical Time Intervention (CTI) and Usual Services Only (USO) Groups

	CTI (n = 48)		USO (n = 48)	
	No.	%	No.	%
No. homeless nights				
0	31	65	26	54
1–7	2	4	2	4
8–29	2	4	1	2
30–89	7	15	1	2
≥90	6	12	18	38
Total nights homeless[a]	1415		4370	
Average nights homeless	30		91	

[a]The number of homeless nights (nights spent in a shelter or public space) spent by each client in the previous month was obtained in face-to-face interviews conducted every 30 days during the follow-up period.

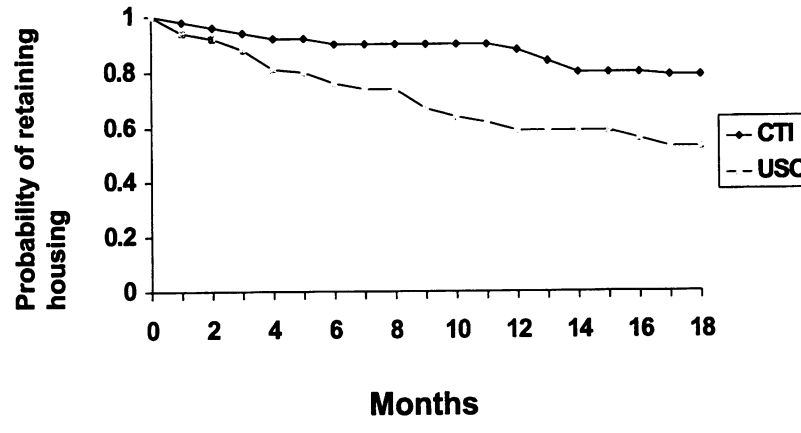

FIGURE 1—Survival from homeless episodes lasting 30 nights or more, over 18 months of follow-up, of mentally ill men in the critical time intervention (CTI) and usual services only (USO) groups.

had been homeless, 29 reported on both occasions that they had not been homeless, and two gave discrepant answers.

Primary Outcome

As described above, the purpose of this study was to test whether CTI was effective in preventing recurrent homelessness. Therefore, the number of homeless nights during the follow-up period was selected a priori as the primary outcome. A homeless night was defined as a night in a shelter or a public space. We excluded instances, however, in which a man chose to spend one or two nights in such a place while retaining his usual residence. For instance, a man might spend a night with his male lover in the shelter or stay up drinking in a bar all night but return the following night to his usual residence; these were not counted as homeless nights.

Data Analysis

A conservative approach was adopted for the data analysis of this randomized clinical trial. Thus, an "intention to treat" analysis was used: all cases were included, whether or not the client completed the intervention or follow-up. The main effects were demonstrated in bivariate comparisons. The results were later verified by means of alternative approaches and multivariate analyses; these analyses showed the same or slightly stronger effects (data available on request).

First, we compared the CTI and USO groups with respect to the primary outcome, that is, the mean number of homeless nights over the follow-up period. In light of the non-normal distribution of homeless nights, we conducted both a parametric and a nonparametric analysis. In the parametric analysis, the normal approximation was used to derive a 95% confidence interval for the difference between the two groups in the mean number of homeless nights and to conduct a two-tailed significance test. In the nonparametric analysis, the bootstrap procedure was used.[40]

Second, we compared the two groups with respect to the proportion who were homeless at the end of the 18 months of the study. We defined an individual as homeless at the end of the study if he had been homeless for most (more than half the nights) of the last month. We computed the relative risk for homelessness at the end of the study in the CTI group vs the USO group, and, using Taylor series, we computed a 95% confidence interval for the relative risk. In addition, the chi-square statistic was used for a two-tailed test of statistical significance.[39]

Third, to elucidate time trends, we constructed survival curves.[41–43] The survival analysis compared the effects of the two treatments on "major homeless episodes," which were defined as episodes lasting 30 nights or more. We used a method of survival analysis suitable for recurrent events, since the men could have more than one homeless episode during the follow-up period.*

Fourth, to examine the effect on the most serious form of homelessness, we compared the two groups with respect to

*We examined survival from major homeless episodes in the following manner. The follow-up period of 540 nights was subdivided into 18 periods of 30 nights, henceforth referred to as months. We calculated the risk of a major homeless episode for each of the 18 months. In computing the risk for each month, the denominator was all men who had housing at the beginning of the month, and the numerator was the number of men who became homeless in that month and remained homeless for 30 nights or more. For instance, consider a man who became homeless in the first month, remained homeless up to the middle of the fourth month, and then regained his housing until the end of the study. This man would be counted in both the denominator and the numerator of risk for the first month; in months 2 to 4 he would not be counted in either the denominator or the numerator; and in months 5 to 18 he would be counted only in the denominator. After the risk for each month had been computed, cumulative survival probabilities were calculated in a standard fashion.

Under certain assumptions, this procedure is appropriate for a recurrent event such as a homeless episode. We then constructed survival curves, showing the cumulative survival probability across the 18 months for each group, in a standard fashion. The log rank test was used to test whether survival in the CTI group differed significantly from survival in the USO group. When this analysis was repeated under alternative procedures, such as using a survival analysis that allowed for only one occurrence of a major homeless episode in each subject or using general estimating equations, the results were essentially the same.

the risk of extended homelessness, defined a priori as being homeless more than 54 nights (10%) of the follow-up period. The relative risk with 95% confidence intervals was computed and the chi-square statistic was used to test significance.

Finally, to explore whether the effect pertained equally to various other forms of homelessness, we also compared the two groups with respect to intermediate (30 to 54 nights) and transient (1 to 29 nights) homelessness. Because of the small number of men with these outcomes, Fisher's Exact Test was used for a two-tailed test of statistical significance.

Results

There were few differences between the two groups in background characteristics (Table 2). Cocaine dependence and long-term homelessness were reported more often, however, by men in the CTI group than by those in the USO group. These differences would place the CTI group at higher risk of homelessness than the USO group, so that the results of bivariate analyses would be conservative.

The 18-month follow-up data on homelessness were complete for 94 of the 96 participants. One man in the USO group was lost to follow-up; he was fleeing drug dealers and it is not known whether he is alive. Another man in the USO group committed suicide after learning that he was HIV-positive. In a conservative approach, these two men who failed to complete the study were assigned 0 homeless nights for the period after they left the study.

The average number of homeless nights over the 18-month follow-up period was 30 for the CTI group and 91 for the USO group (Table 3). The difference (−61) was statistically significant ($z = 2.8$, $P = .003$). Using the normal approximation, the 95% confidence interval for the difference was −105, −19. Using the nonparametric bootstrap procedure, the 95% confidence interval for the difference was −110, −19.

During the last month of the 18-month follow-up, 4 (8%) of the men in the CTI group and 11 (23%) of the men in the USO group were homeless ($\chi^2 = 3.87$, $df = 1$, $P = .05$). The relative risk was 0.36 (95% confidence interval [CI] = 0.12, 1.06).

The survival curves comparing the effects of CTI and USO on major homeless episodes indicate that the difference between the groups tended to widen rather than narrow over the course of the study (Figure 1). According to a log rank test, the risk of a major homeless episode was significantly lower in the CTI than in the USO group ($P = .003$).

Extended homelessness (more than 54 nights) occurred in 10 (21%) of the men in the CTI group, compared with 19 (40%) of the men in the USO group ($\chi^2 = 4.0$, $df = 1$, $P = .045$). The relative risk was .53 (95% CI [Taylor series] = 0.27, 1.01).

Intermediate homelessness (30 to 54 nights) occurred in three (6%) of the men in the CTI group, compared with none in the USO group (Fisher's Exact $P = .24$). Transient homelessness (1 to 29 nights) occurred in four (8%) of the men in the CTI group, compared with three (6%) in the USO group (Fisher's Exact $P = 1.00$).

Discussion

In this study, CTI significantly reduced homelessness. In a randomized clinical trial with virtually complete 18-month follow-up data and assessments blind to treatment status, this result is unlikely to be due to bias. The intervention was successful in a difficult population of inner-city men; these men had severe mental illness, often were substance abusers, and in some cases had other serious health problems, including HIV infection.

There were three main findings. The first was that CTI prevented most, though not all, of the recurrent homelessness among these men. Compared with the USO group, the CTI group had one third the number of homeless nights (average of 30 nights vs 91 nights). Similarly, in the last month of the study, 8% of the men in the CTI group but 23% of the men in the USO group were homeless.

These men had entered community housing from an on-site psychiatric program in a men's shelter. This on-site program has been described as a model of outreach and rehabilitation for homeless men with mental illness.[27,34] Nonetheless, CTI substantially enhanced the benefits of the treatment that preceded it.

The second finding was that the difference between the CTI and the USO groups showed a trend toward increasing, rather than diminishing, after the 9-month period of active intervention. In previous clinical trials of community mental health interventions, the effects faded after the period of intervention.[17–20] The benefits of CTI endured, however, for at least 9 months after the intervention was withdrawn.

The parsimonious explanation for this finding lies in the design of CTI. The explicit aim of CTI was to build durable ties between patients and their long-term supports. The CTI worker was instructed *not* to become the primary source of care. By contrast, previous interventions were designed to provide patients with direct support; perhaps not surprisingly, when the direct support was withdrawn, the effects were lost.

The third finding was that the effect of CTI pertained specifically to the most serious form of homelessness, that is, extended homelessness. Compared with the USO group, the CTI group had half the risk of extended homelessness (21% vs 40%). The risk of lesser degrees of homelessness, however, was not reduced.

This apparent specificity, while unanticipated, may be explained by a combination of two factors. One is the presence of distinctive patterns of homelessness with somewhat different causes, as suggested by a growing empirical literature.[12] In this population, in particular, a homeless shelter can sometimes be used for a respite or as a way station between residences. The other factor is that CTI reduced the duration of homeless episodes, shifting the distribution from extended homelessness toward lesser degrees of homelessness.

Implications

This study has positive implications for mental health services. CTI represents one of the first strategies that has been shown to be effective specifically in the prevention of homelessness. Although the approach was tested here to prevent recurrent homelessness in patients discharged from a shelter, it is designed to be equally applicable to prevention of first episodes of homelessness and for use in the transition from any type of institution to the community.

In regard to the design of mental health services more generally, this study indicates the potential of specialized services that focus on continuity of care during a critical time of transition. The specific nature and timing of the intervention may differ depending on the purpose. The present study was directed toward prevention of homelessness and targeted the point of transition from institutional to community living. The same principles could be applied to other dimensions of patient care and to other points of transition in patient care.

The development of such highly focused services could be used to complement broader strategies that have improved psychiatric care in some communities.[17–22] Under optimal community care, there is coordination of the services and administrative systems needed to provide housing, income, jobs, medical care, psychiatric treatment, and other forms of support and rehabilitation. In addition, community support teams may be organized for effective delivery of these services to patients. In these circumstances, CTI could be finely targeted to those transition points where discontinuities tend to occur.

CTI could also be adopted, however, by a more typical and fragmented system of community care. This approach does not require fundamental changes in a service system and need not be expensive or difficult to implement. The intervention used in the current study was not costly[44]; it was short in duration and entailed a simple protocol that could be implemented with nonprofessional staff in a marginal setting. By contrast, the adoption of novel approaches to long-term, specialized support services tends to be costly, to be complex, and to require fundamental system change, each of which poses a serious barrier in many settings.

As it becomes increasingly important for community care to document cost-effectiveness and feasibility,[23,45–47] these aspects of the CTI approach represent a considerable advantage. To avoid misapplication of this notion, we underscore that CTI succeeded by ensuring the continuity of care in the community, not by dispensing with care in the community; it depended on the presence of community services and informal caregivers to assume the future care of the client. The transfer of care for chronic patients is a delicate process that may be likened to two trapeze artists' grasping hands in midair. The purpose of CTI is to strengthen the caregivers' grasp at the critical moment.

Limitations

There were several limitations of this study. First, the number of participants was modest. On the other hand, statistical power was enhanced by the completeness of the follow-up, the large size of the effect, and the detailed assessments of outcome. The number of subjects proved sufficient to achieve a clear statistically and socially significant result.

Second, the follow-up was limited to 18 months overall and 9 months after the active intervention. Although this follow-up period exceeds those of most previous studies of community psychiatric care, it does not permit us to assess the longer-term effects of CTI.

Third, the intervention was tested among men who had completed an on-site shelter program. The men in the CTI group received on-site treatment followed by CTI, whereas the men in the USO group received on-site treatment followed by usual services. Therefore, the on-site program provided the base for the successful implementation of CTI. This study could not determine what elements of the preceding on-site treatment may have been essential to the effectiveness of CTI.

Fourth, since men could not enter the study until they had completed the on-site treatment, some of the most intractable patients may not have entered this study; however, the men included in the study were drawn from the extreme end of the spectrum of treatment difficulty among psychiatric patients.

Finally, this report was restricted to the main outcome of the clinical trial, that is, prevention of recurrent homelessness. Subsequent reports will examine a broader range of clinical outcomes, the effects of CTI in specific subgroups, the factors that mediated the effect at the level of the individual client, and the cost-effectiveness of the intervention. It should be noted, however, that the overall trend was toward better clinical outcomes with CTI than with USO.

Conclusion

This study demonstrates that it is possible to intervene to prevent homelessness among individuals with severe mental illness. The view that these patients suffer homelessness and other deprivations because they cannot be reached may be unwarranted. Furthermore, the intervention that proved effective in this study was neither costly nor complex. We infer that homelessness among the mentally ill is to some degree preventable by readily available means. □

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